

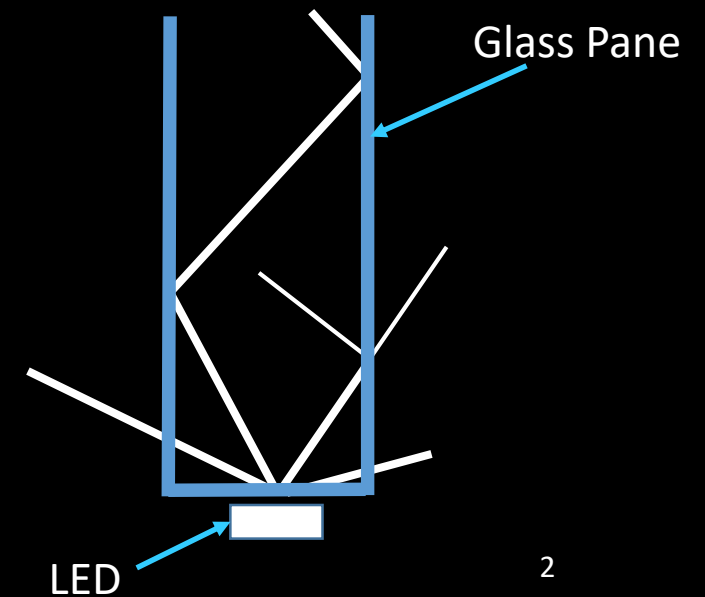
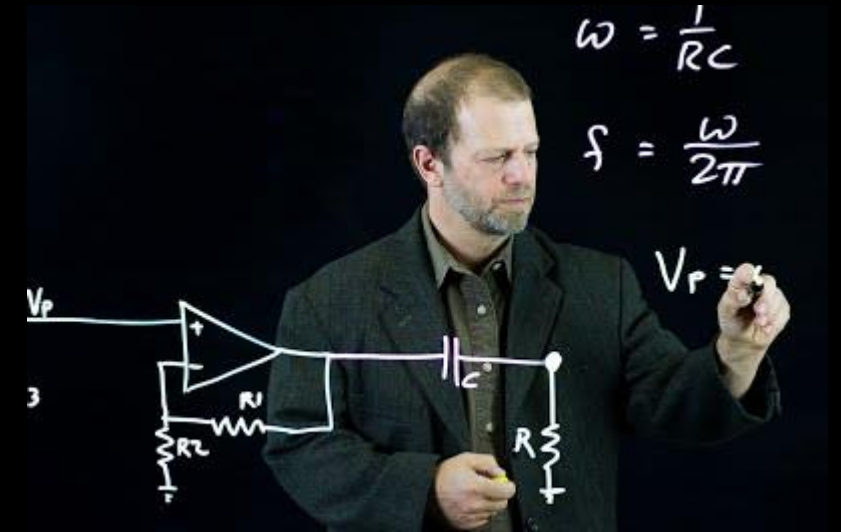


# Buzz Lightboard

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# Overview

- What is a lightboard?
  - A see through whiteboard that is an effective online teaching tool
- How does it work?
  - Total internal reflection
  - Frustrated total internal reflection to illuminate the ink in contact with the glass
- Why is it useful?
  - Provides a more engaging and personal experience to the typical online class
  - Stimulates the viewer and engages learning in new ways



# Problem Statement

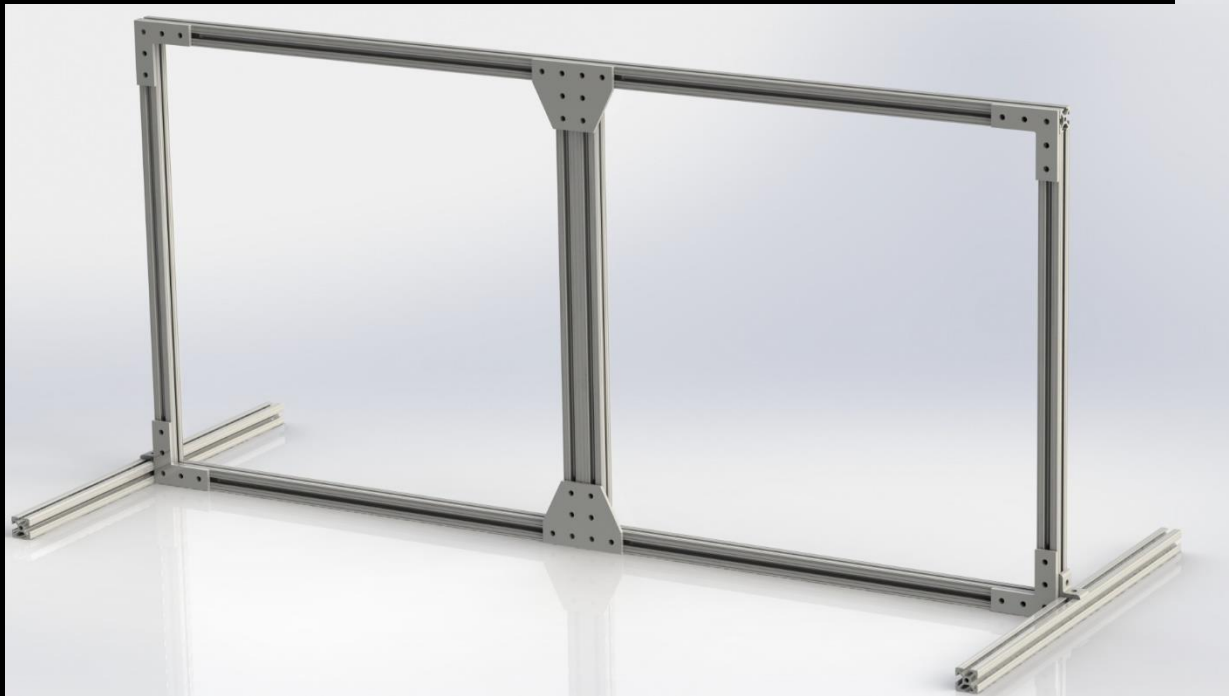
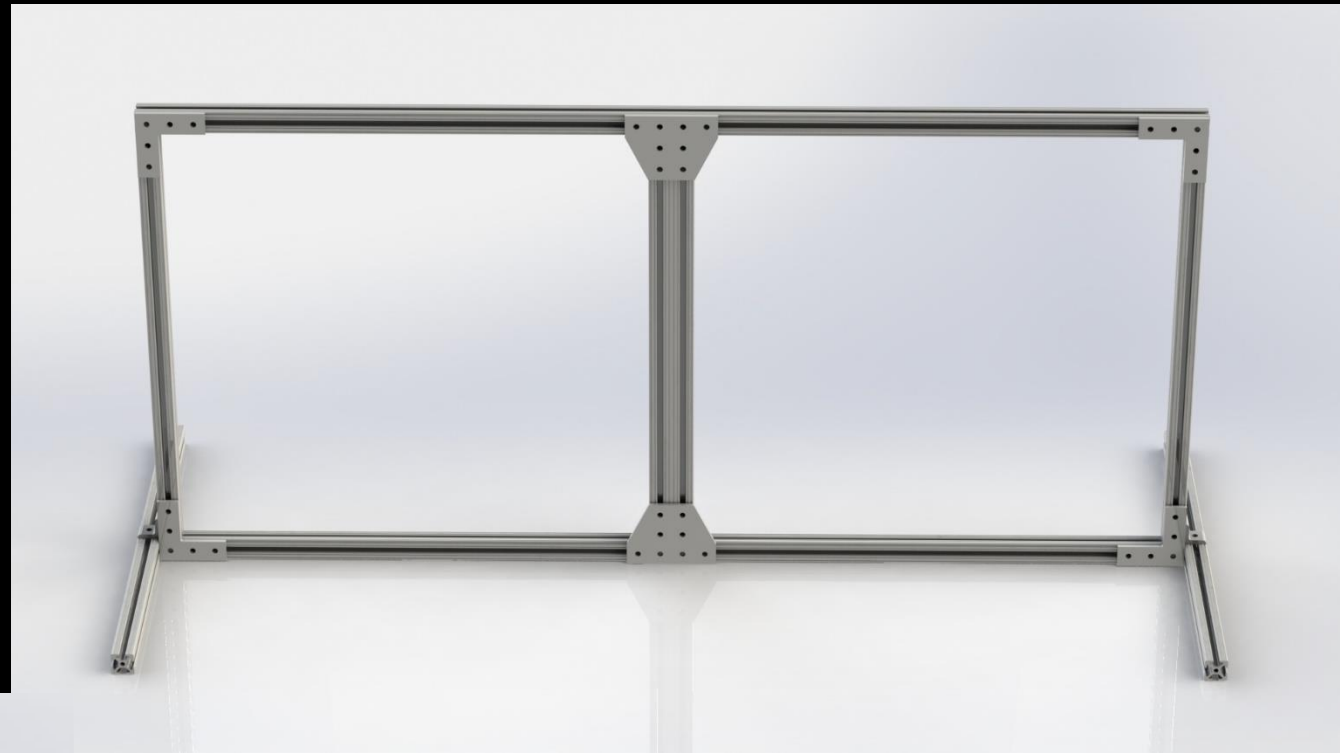
- The Center for Excellence in Teaching and Learning (CETL) at the University of Idaho requested we manufacture a low cost lightboard.
- MSRP ≈\$3000
- Our Budget \$2000
- Goal: create a financially palatable lightboard that will be specially designed to gain faculty buy-in/interest via portability and user convenience.

# Glass Options



- Regular Plate Glass
  - Window Glass
  - Cheaper ( $\approx \$4/\text{ft}^2$ )
  - Poor Light Penetration
- Starphire Glass
  - Low Iron Glass
  - Expensive ( $\approx \$12/\text{ft}^2$ )
  - Better Light Penetration

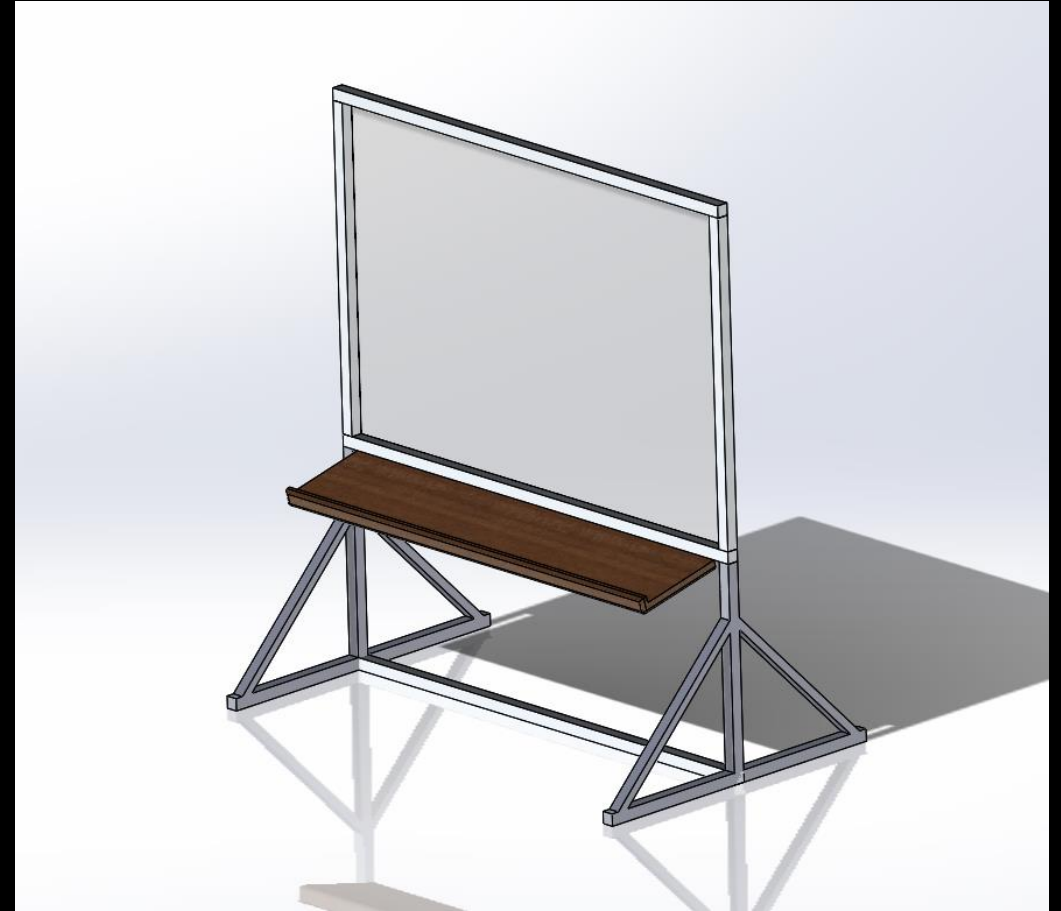
# Prototype Design



# Demonstration

# Final Design Specs

- ¼" thick 4' X 6' glass sheet
- Ergonomic for wide range of users
- Capable of fitting through doorways
- Caster wheels for mobility
- Adjustable shelf
- Aesthetically appealing



# Plan to Budget

- Purchase locally
- Approach about sponsorship
- Laser etch shelf



University  
*of* Idaho



# Budget

- Prototype Sunk Cost
  - \$105.49
- Final Components Purchased
  - LED dimmer, lights, pwr. supply
  - \$77.41
- Total Remaining Budget
  - \$1,317.10

Capstone Project Budget Template - Summer/Fall							
Project:		CETL LightBoard					
Last Updated		7/30/2018					
Expense Items							Item Total
	2018						
	June	July	Aug	Sept	Oct	Nov	Dec
Equipment/Tools:							
Supplies / Parts / Services:							
Glass board				X			
Extruded Aluminum				X			
Wood						X	
Building Material					X		
LED Dimmer		X					
LED Lights		X					
12V Power Supply 60W		X					
Neon Expo Markers		X					
Background Materials							X
Caster Wheels						X	
Prototype Glass		X					
Prototype Frame		X					
ME Shop Usage (est. Hrs):							
Aluminum Frame (Board)						X	
Aluminum Supports						X	
Wood Shelf						X	
Prototype		X					
Graduate Student Support						\$ -	including fringe
Shop Overhead						\$ -	
University Overhead						\$ 71	5% of all expenses
Totals						\$ 1,489	Budget Excess \$ 11

# Goals

## Completed

- Prototype
- Glass Comparison
- Purchase LEDs
- Frame Layout Test

## Upcoming

- Perform Prototype Tests
  - Projection
  - Lighting Arrangements
- Create Video Comparing Glasses
- Solidify Final Design Concept
- Purchase Full Size Sheet of Glass
- Purchase Framing Material

# Schedule

[illegible]

# Questions?